Firefly®

Wireless Microscope

GT620 User Manual

THANKS FOR SELECTING A WIRELESS FIREFLY MICROSOCPE

To take full advantage of this product's advanced capabilities,
and to properly and safely use this product, please read the manual carefully.

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Caution: Changes or modifications not expressly approved by Firefly Global will void the purchaser's authority to operate the equipment and its warranty.

CE RoHS 2002/95/EC FC Tested To Comply With FCC Standards For Home or Office Use

Table of Contents

Introduction **4**

Warnings & Cautions **5**

Warning 5

Caution 5

Check List **7**

Nomenclature **8**

Operation **9**

Setting up the software application： 9

Connect to PC： 9

Power the Device On： 9

Charging Battery: 10

Channel Mapping: 10

Using the Firefly Microscope System: 10

Recommended holding position: 11

High zoom use: 12

Brightness Adjustment: 13

Using Focus: 13

Using the image capture control: 13

Using the Polarizer: 14

Standby and Remove device: 14

Launch the Software Application: 15

Viewing the Images: 15

Maintenance and Service **17**

Cleaning recommendation 17

Recycling the system components 17

Service policy 18

Specifications **19**

Limited Warranty **20**

Troubleshooting **23**

INTRODUCTION

The Wireless Firefly Microscope System consists of a wireless digital Microscope, a compact USB receiver, software application and a charge cable. Only a computer equipped with a free USB port is needed to use the system.

The Firefly Microscope System is designed for effective operation under a variety of conditions and typical video parameters are set at the factory. The software allows users to adjust most parameters including Saturation, Hue, Brightness, Contrast and Sharpness for desired applications.

The System is equipped with an integrated polarizer ring. Rotating the ring enables multiple degrees of polarization. The System is also equipped with a fine focus wheel which enables crystal clear images at very high degrees of magnification.

System Requirements

The Wireless Firefly Microscope System requires a user PC system running Windows XP Service Pack 2 or later operating system, a viewing screen, and a PC with an available USB 1.1 or 2.0 port.

Intended use

The Firefly Microscope System is intended to conveniently enable skin inspection and image recording.

User Profile

The Wireless Firefly Microscope System is intended for applications such as:

- Scientific Research
- Engineering
- Education
- Gemology

Warranty Registration

Register your Firefly device at http://www.fireflyglobal.com/warranty-registration/ within two weeks of your purchase and maintain your original receipt.

WARNINGS & CAUTIONS

Please familiarize all operating personnel with the general safety information in this summary. Specific warnings and cautions are also found throughout this manual.

Warning

A warning statement in this manual identifies a condition or practice which if not corrected or discontinued immediately, could lead to injury, illness, or death.

- Do not use in the presence of flammable anesthetics.
- This product has no user serviceable/replaceable parts. Please refer all service to authorized service personnel.
- This product generates and records reference images from inputs obtained from the software application FireflyPro. These reference images are not intended for medical or other diagnostic purposes.

Caution

A caution statement in this manual identifies condition or practice, which if not corrected or discontinued immediately, could lead to equipment failure, equipment damage, or data loss.

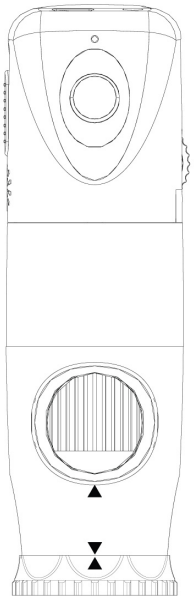
- In order to obtain optimum performance and ensure patient safety, thoroughly read this manual.
- Do not use the Wireless Firefly Microscope if you notice any signs of damage to the components of the system. Contact customer service for immediate assistance.
- Do not attempt to disinfect the Wireless Firefly Microscope System using glutaraldehyde products, ethylene oxide gas, steam or any other liquid or gas disinfectant.
- The signal output (USB Port) connector is intended for connection of only devices complying with IEC 60601-1, or other IEC standards (for example, IEC 60950), as appropriate to the device. Connecting additional devices to the Wireless Firefly Microscope System is not allowed. You are responsible for verifying that the system complies with the requirements of the system standard IEC 60601-1-1.

- This product complies with current required standards for electromagnetic interference and should not present problems to other equipment or be affected by other devices. As a precaution, avoid using this device in close proximity to other equipment.

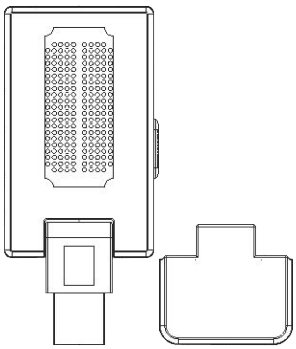
- Do not apply alcohol, chemicals, or water to the lens. Any liquids entering the optical assembly will damage internal components.

CHECK LIST

Before starting, check that all the following items have been included with your product. If anything is missing, contact your dealer.

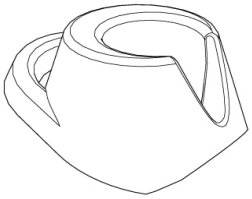


Microscope x 1pc



Receiver x 1 pc

Scope spacer x 1pc



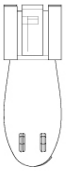
Cradle x 1 pc

Power Adapter x 1pc

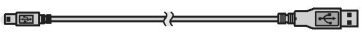
100-240V AC to 5V USB DC

Notice: Actual Shape may vary.

Software Application CD

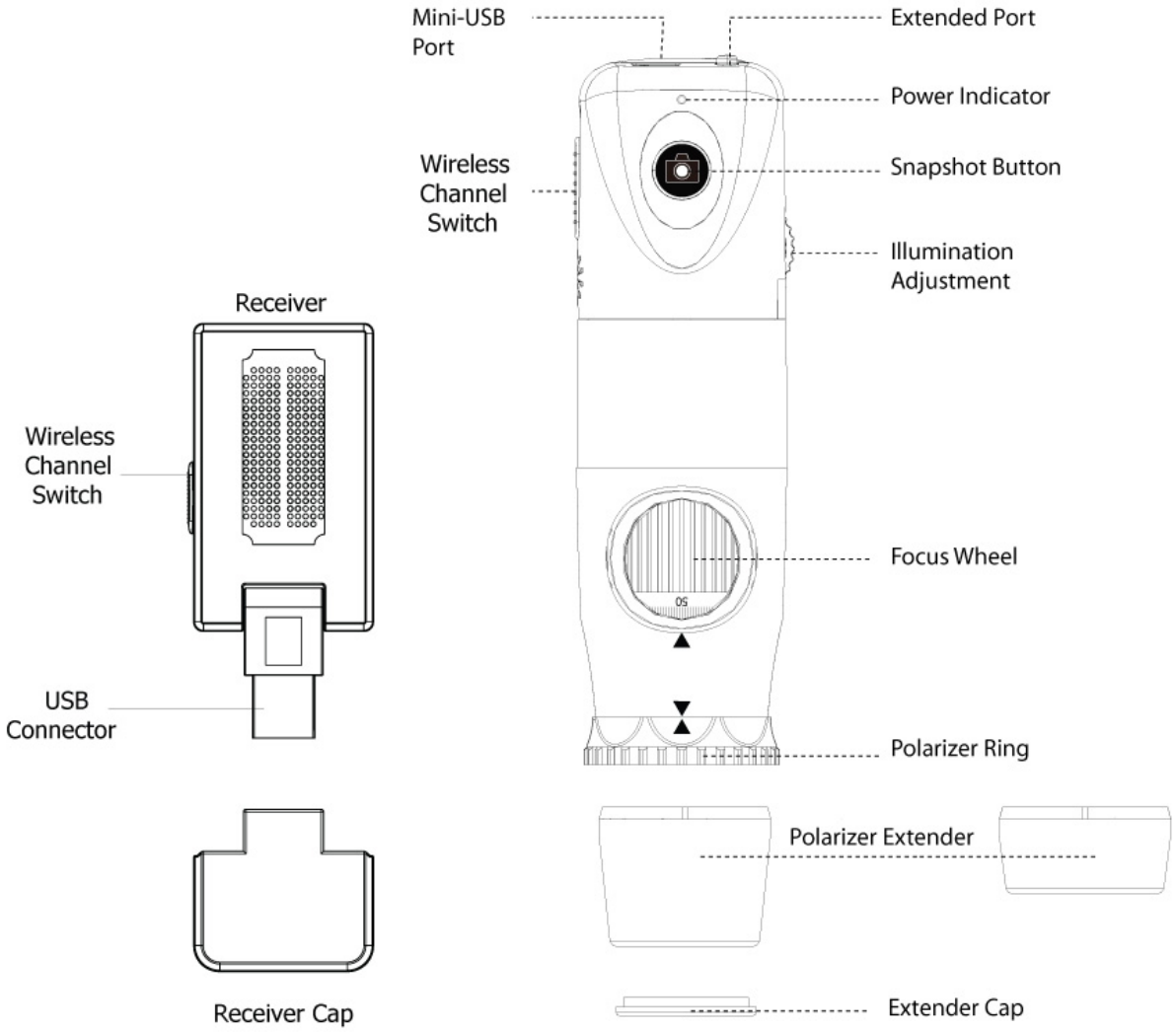


Clip x 1 pc



USB DC power cord x 1 pc

NOMENCLATURE



OPERATION

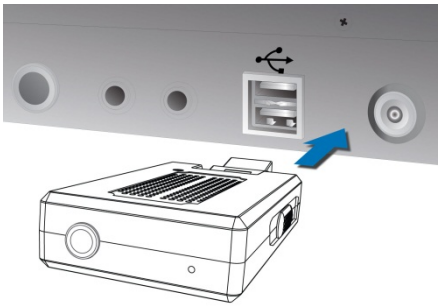
To obtain a clear image, please grip the Firefly Microscope; remain still and avoid vibration as much as possible during observation.

Setting up the software application：

Prior to using the Firefly D Microscope for the first time, install the FireflyPro software application following the instructions provided with the installation CD.

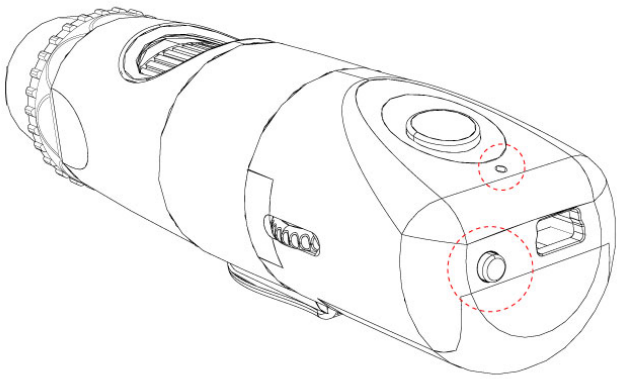
Connect to PC：

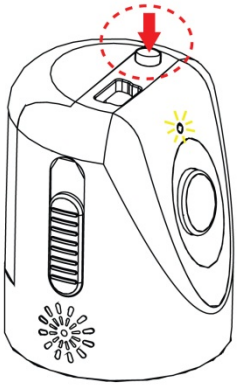
Connect the compact receiver to the PC's USB port



Power the Device On：

Push the 'Power Button' at the rear of the microscope to activate the device. An indicator light will turn on to confirm the power status.





Charging Battery:

- Duration:

The Wireless Firefly Microscope has a built-in high efficiency lithium battery that enables more than 3 hours continuous operation.

- Charging the Battery:

Through the mini-USB port at the rear of the microscope, the embedded battery can be charged with the provided USB DC cable. The cable must be connected to the USB port of a PC or to the "USB Power Adapter", which can charge directly from a wall outlet.

- Overload Protection:

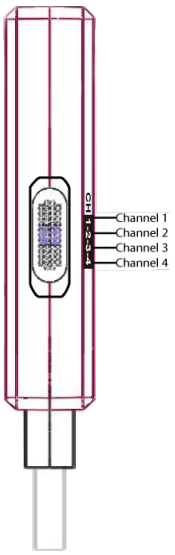
The overload protection circuit will prevent overcharging when the battery is full and the "Indicator" will turn green.

- Power Indication:

The power indicator light is normally red during operation, but it will turn blue when the remaining battery life is less than 30 minutes.

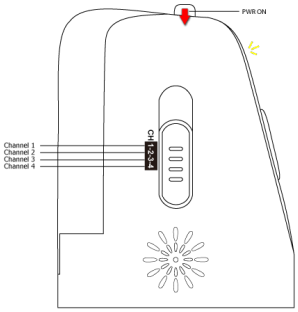
The lithium battery is a delicate and consumable item. It is expected to last through years of use and is guaranteed for twelve months from its purchase against defects. If there is any battery related issue, please contact customer service immediately. Battery replacement by unauthorized personnel or replacement with unauthorized batteries may damage the system and voids the overall warranty.

Channel Mapping:



On the rear right side of the microscope, there is a switch allowing users to set the wireless channel. Both the receiver and microscope must be set to the same channel for proper operation:

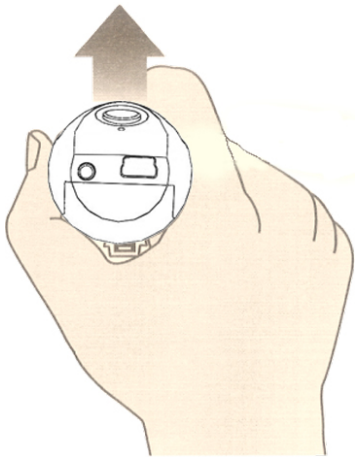
- CH 1: Channel 1
- CH 2: Channel 2
- CH 3: Channel 3
- CH 4: Channel 4



Using the Firefly Microscope System:

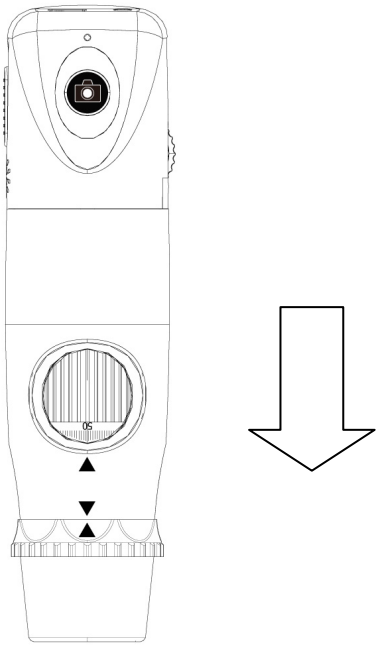
Recommended holding position:

It is suggested to hold the Microscope, transparent cover forward, with the thumb held on the equipment. This holding position offers relative stability and allows lens control. The index finger is still free to rotate and adjust the focus wheel (as shown).



High zoom use:

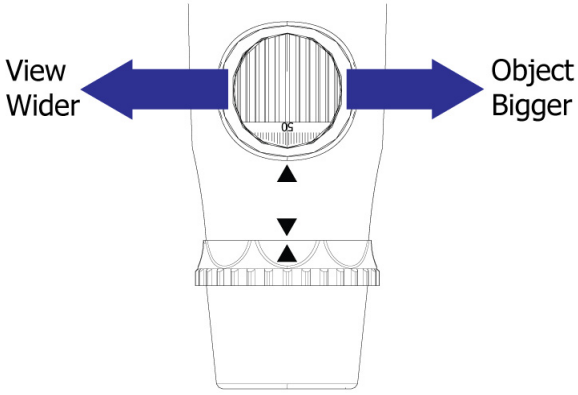
When there is a need for high zoom, maintaining body stability becomes more paramount. In such instances, it is suggested that the digital Microscope focus wheel opening should be placed towards the user, and the transparent cover vertically downward. This enables easy access to the focus wheel and a very stable position. A smooth desktop may be used as an observation platform. (Shown below)



Device vertically downward (stable observation)

Focus :

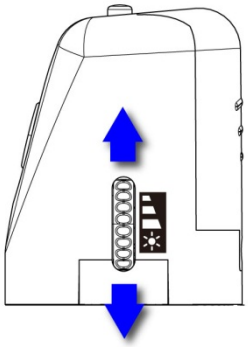
Based on the relative height of the observed object, the focus wheel can be turned for a clear image. When a higher magnification is required, the focus wheel can be turned to the left (see below). If a larger field of view is required, the Microscope can be moved farther away and the focus wheel turned to the right.



Brightness Adjustment:

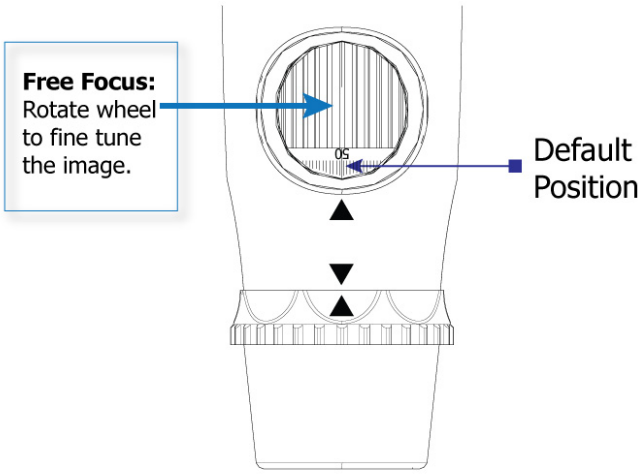
On left rear side of the Microscope, a knob allows the user to control the brightness of the LEDs:

- Backward Turn: Decrease Brightness
- Forward Turn: Increase Brightness



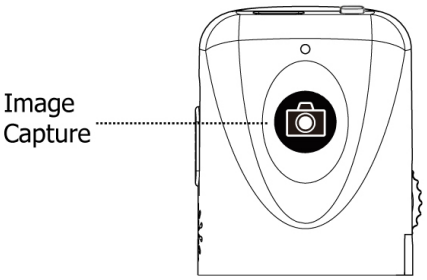
Using Focus:

Default Position: Match the scale "50" to arrow mark.



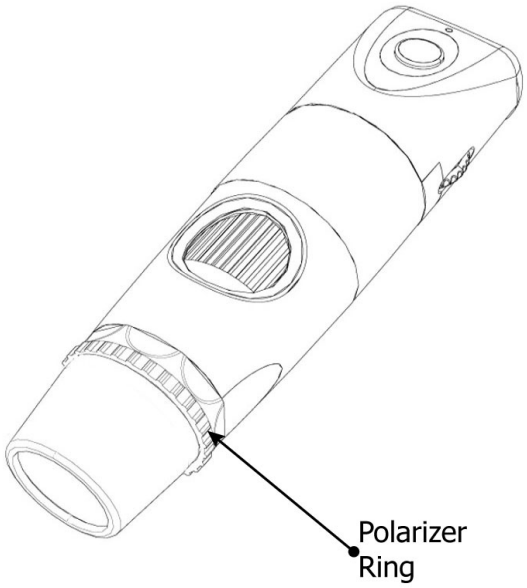
Using the image capture control:

Press and release the Capture button to capture image frames. The system will generate a shutter sound from the PC speaker as confirmation.

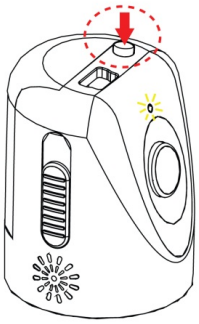


Using the Polarizer:

The GT620 is equipped with an integrated polarizer feature. To activate polarization, turn the black ring behind the nose extender. Multiple degrees of polarization may be achieved by gradually turning the polarizer ring from 0degrees to 360degrees.



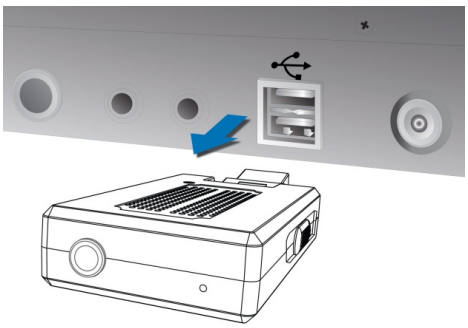
Standby and Remove device:



To temporarily turn off or remove the device, push and release the power button to the "OFF" position. The device must also be turned off through the Windows operating system:

- On your Microsoft Windows Desktop, click My Computer in the left pane. Double-click the USB Video Device (Wireless Digital Microscope in Windows Vista and Windows 7).

After turning off the device through Windows above, the compact receiver can be unplugged from the PC's USB port. Using this sequence will avoid transient voltages from potentially causing hardware damage.



Launch the Software Application:

Double-click the FireflyPro.exe icon on your computer desktop:

Viewing the Images:

FireflyPro software controls your Firefly Microscope. The Microscope communicates with the PC through the USB compact receiver. The user can configure the video properties, review live images, capture images, record video clips and perform a variety of powerful measurement and documentation functions.

The main features of FireflyPro are shown below:

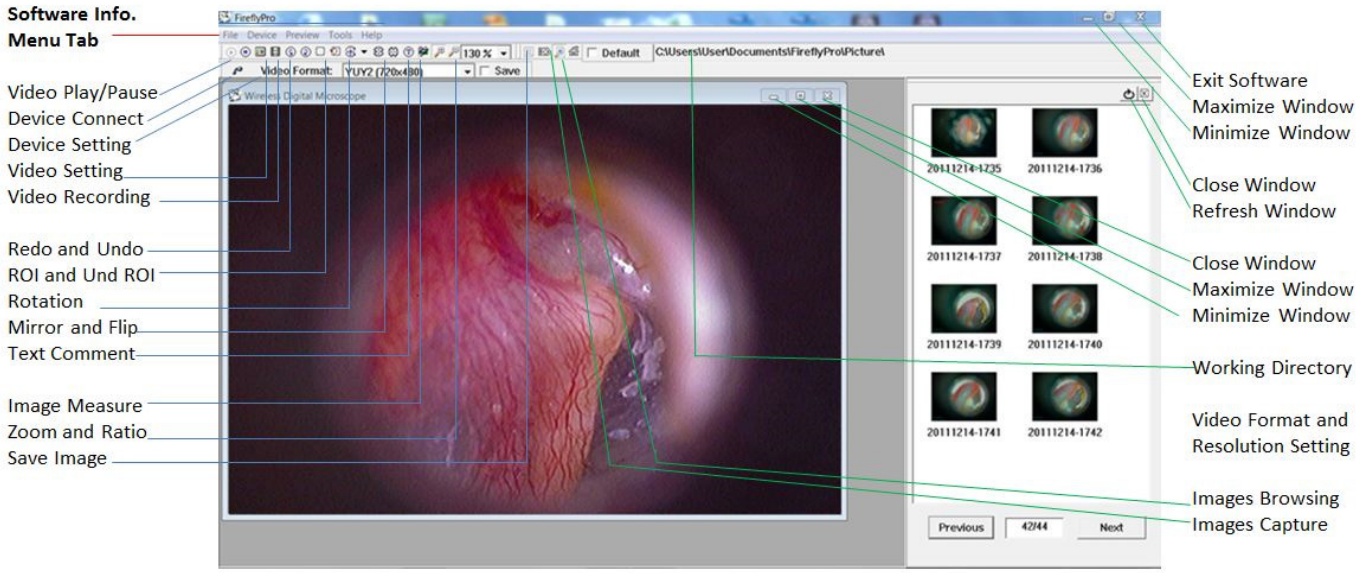
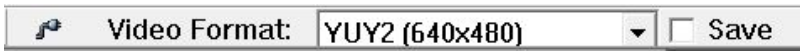


Image tool bar:

Icon	Icon Name	Function Description
	Save Image	Store frozen image
	Image Capture	Capture and store instant image from live video
	Image Browsing	Browse images in working directory
	Working Directory	Pop-up to select working directory path
C:\Documents and Settings\My Documents\Firefly\Picture		Working directory path

Device Tool bar:



Icon	Icon Name	Function Description
	Device Connect	Refresh image device connection
YUY2 (640x480)		Select a video format (default 640x480 YUY2)

MAINTENANCE AND SERVICE

Cleaning recommendation

CAUTION Do not apply alcohol, chemicals, or water to the lens. Any liquids entering the optical assembly will damage internal components.

Use a dry cloth to clean the Digital Firefly Microscope System on a weekly basis.

Recycling the system components

Within the EU

Do not dispose of this product as unsorted municipal refuse. Submit for separate collection as specified by Directive 2002/96/EC of the European Parliament and the Council of the European Union on Waste Electronic and Electrical Equipment (WEEE).

If this product is contaminated, this directive does not apply. For more specific disposal information contact Customer Service.

Outside the EU

When the product and its components reach end of life, recycle the product according to national, state, and local regulations.

Service policy

All repairs on products under warranty must be performed or approved by Firefly or its authorized resellers. Unauthorized repairs will void the warranty. In addition, whether or not covered under warranty, any product repair shall exclusively be performed by Firefly-certified service personnel.

If the product fails to function properly — or if you need assistance, service, or spare parts — contact your Firefly reseller.

Before contacting your reseller, try to duplicate the problem and check all accessories to ensure that they are not causing the problem. When calling, please be prepared to provide:

- Product name and model number and complete description of the problem.
- Serial number of your product (if applicable).
- Complete name, address and phone number of your facility.
- For out-of-warranty repairs or spare parts orders, a purchase order (or credit card) number.
- For parts orders, the required spare or replacement part numbers.

If your product requires warranty, extended warranty, or non-warranty repair service, please contact your Firefly reseller. A customer service representative will assist you in troubleshooting the problem and will make every effort to solve it over the phone, avoiding potential unnecessary returns. In case a return cannot be avoided, the representative will record all necessary information and will provide a Return Authorization number, as well as the appropriate shipping address. The Return Authorization number must be obtained prior to any return.

If you have to return your product for service, follow these recommended packing instructions:

- Disconnect all hoses, cables, sensors, power cords, and ancillary products (as appropriate) before packing, unless you suspect they are associated with the problem.
- Wherever possible use the original shipping carton and packing materials.
- Include a packing list and the Return Authorization number.

It is recommended that all returned goods be insured. Claims for loss or damage to the product are the responsibility of the sender.

SPECIFICATIONS

Item	Specification
Weight	Approximately 100 g (0.22 lb)
Dimensions (approximate)	Length: 11.4 cm (4.5 inches) Height: 3.7. cm (1.5 inches) Width: 3.7 cm (1.5 inches)
Power	USB 5 VDC, 150mA
Protection against ingress of water	IPXØ
Operating conditions	
Temperature	+10°C to +40° C (+50°F to +104°F)
Relative humidity	30% to 75% noncondensing
Altitude	700 to 1060 hPa
Shipping & storage conditions	
Temperature	-20°C to +49°C (-4°F to +120°F)
Relative humidity	95% noncondensing max.
Wireless power	Less than 15mW
Sensitivity	-87dBm
Noise ratio	47dBm
Antennae resistance	50Ω
Wireless Link	4 channels
Coverage	Over 5 meters (15ft) on open field
Battery	More than 3 hours continuous usage
Capacity	850mAh (Lithium battery)
Service	Authorized personnel only
Safety Compliance	FCC, CE and RoHS compliant
Patent	Patent Pending

LIMITED WARRANTY

Limited Hardware Warranty (through distributors & resellers)

Firefly Global hardware products come with a 1-year limited hardware warranty. The warranty is extended through Firefly Global authorized representatives and resellers. If you have a warranty claim, please contact the store, distributor, or website through which the product was purchased.

Register your Firefly device at http://www.fireflyglobal.com/warranty-registration/ within two weeks of your purchase and maintain your original receipt.

What is covered by this limited hardware warranty?

This limited hardware warranty covers defects in materials and workmanship in your Firefly Global hardware products.

What is not covered by this limited hardware warranty?

This limited hardware warranty does not cover:

- Software, including the operating system and software added to or bundled with the Firefly Global hardware products
- Problems that result from:
  - External causes such as accident, abuse, misuse, or problems with electrical power
  - Servicing not authorized by Firefly Global
  - Usage that is not in accordance with product instructions
  - Failure to follow the product instructions
  - Problems caused by using accessories, parts, or components not supplied by Firefly Global
- Products with missing or altered serial numbers
- Products for which Firefly Global or its distributors have not received payment
- Normal wear and tear

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE (OR JURISDICTION TO JURISDICTION). FIREFLY GLOBAL'S RESPONSIBILITY FOR MALFUNCTIONS AND DEFECTS IN HARDWARE IS LIMITED TO REPAIR AND REPLACEMENT AS SET FORTH IN THIS WARRANTY STATEMENT. ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES AND

CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN TIME TO THE TERM OF THE LIMITED WARRANTY PERIOD REFLECTED ON YOUR PACKING SLIP OR INVOICE. NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THE LIMITED WARRANTY PERIOD HAS EXPIRED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THIS LIMITATION MAY NOT APPLY TO YOU.

WE DO NOT ACCEPT LIABILITY BEYOND THE REMEDIES PROVIDED FOR IN THIS LIMITED HARDWARE WARRANTY OR FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, ANY LIABILITY FOR THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES, FOR PRODUCTS NOT BEING AVAILABLE FOR USE, OR FOR LOST DATA OR LOST SOFTWARE. OUR LIABILITY WILL BE NO MORE THAN THE AMOUNT YOU PAID FOR THE PRODUCT THAT IS THE SUBJECT OF A CLAIM. THIS IS THE MAXIMUM AMOUNT FOR WHICH WE ARE RESPONSIBLE.

How long does this limited hardware warranty last?

The limited hardware warranty on all Firefly Global products begins on the date of the packing slip, invoice, or receipt. The warranty period is not extended if a warranted product or any parts are repaired or replaced. Firefly Global may change the availability of limited hardware warranties, at its discretion, but any changes will not be retroactive.

What do I do if I need warranty service?

Before the warranty expires, please contact the store, distributor, or website through which the product was purchased.

What will Firefly Global do?

Firefly Global or its authorized representative or reseller will repair any Firefly Global hardware products returned that prove to be defective in materials or workmanship. If Firefly Global or its authorized representatives are not able to repair the product, we will replace it with a comparable product that is new or refurbished.

When you contact our authorized representatives or resellers via phone or email, they will issue a Return Material Authorization Number for you to include with your return. You must return the products in their original or equivalent packaging, prepay shipping charges, and insure the shipment or accept the risk if the product is lost or damaged in shipment. The repaired or replacement products will be returned to you. The reseller or authorized representative will pay to ship the repaired or replaced products to you if you use a delivery address in the country where the reseller is located. Otherwise, the product will be shipped to you freight collect.

If it is determined that the problem is not covered under this warranty, you will be notified and informed of service alternatives that are available to you on a fee basis.

How will you fix my product?

We use new and refurbished parts made by various manufacturers in performing warranty repairs and in building replacement parts and systems. Refurbished parts and systems are parts or systems that have been returned to Firefly Global, some of which were never used by a customer. All parts and systems are inspected and tested for quality. Replacement parts and systems are covered for the remaining period of the limited hardware warranty for the product you bought. Firefly Global owns all parts removed from repaired products.

May I transfer the limited hardware warranty?

Limited hardware warranties are not transferable.

TROUBLESHOOTING

Installation related questions

Q1: I installed the software, restarted my computer, and then plugged in my wireless receiver and I got the message "Device driver software was not successfully installed", what should I do?

a) You may have accidently installed the DE300 software instead of the GT620. Please uninstall software, restart computer, and install the DE550 software. To uninstall, please follow the steps outlined in the "Uninstallation Instructions" section below.

Q2: When I launch FireflyPro, all I see is a white box or a box with 'snow'?

a) Make sure you turn on your camera and confirm the wireless receiver and the camera are on the same channel. If you still don't see an image the camera's battery may be drained, please charge the device.

Q3: When I launch FireflyPro all I see is a black and white image without any color, what is the problem?

a) Make sure you turn up the brightness dial on the side of the camera to its maximum setting. If this doesn't solve the problem be sure to charge the battery.

Q4: I installed the wireless software and double clicked on the FireflyPro icon, but the software keeps telling me to plug-in device and turn on LED, what is wrong?

a) Make sure the wireless receiver is plugged into your system.

Q5: I double clicked on the FireflyPro icon and the following pop-up appeared, what do I do?:
"The wizard could not find the software on your computer…It is recommended that you connect to the internet so that the wizard can search online and look for the appropriate software. Yes, connect and search for the software on the Internet.
No, do no connect to the Internet now."

a) You may have launched the FireflyPro software before the device drivers had a chance to install. Please start over by uninstalling and then reinstalling the software. To uninstall, please follow the steps outlined in the "Uninstallation Instructions" section below. Following uninstallation, restart the computer and reinstall the software. When you plug in the wireless receiver for the first time after installing the software, you need to wait a few minutes for the necessary driver to install (simply follow the prompts for installation). Be sure to full install the wireless receiver driver before launching the software.

Q6: The following pop-up message appeared what does this mean?
"Found New Hardware. A problem occurred during installation. Your new hardware might not be installed

correctly."

a) Your wireless receiver is probably plugged in but the driver was not installed prior to connecting the wireless receiver to your computer, this is normally a result of having installed the DE300 instead of the GT620 software. To fix this, unplug your wireless receiver, eject software CD (if it is in your computer), and uninstall software. To uninstall, please follow the steps outlined in the "Uninstallation Instructions" section below. Restart the computer, reinstall the software and make sure to select the CORRECT product. Then restart computer and plug in wireless receiver. When you plug in the wireless receiver for the first time after installing the software, you need to wait a few minutes for the necessary driver to install (simply follow the prompts for installation). Be sure to full install the wireless receiver driver before launching the software.

Q7: I installed the DE300 software but I also bought a GT620, do I need to also install the GT620 software?

a) The DE300 can run on both the GT620 and the DE300 software. However, the GT620 can only run on the GT620 software. To use both the DE300 and the GT620 on the same software, install only the GT620 software.

Q8: I see a window pop-up with the following "Device driver software was not successfully installed", why did this happen?

a) You may have tried to launch FireflyPro before the device driver was fully installed. Please restart computer

Q9: Can I install the software without a CD?

a) Yes, please contact support@fireflyglobal.com for a downloadable version of FireflyPro.

Q10: I installed the FireflyPro software and all I see is a blank white screen.

a) Please ensure the wireless receiver and the Firefly are set to the same channel.
b) Please make sure your camera is charged.
c) Make sure the brightness dial is set to the maximum setting.

Q11: I see the following error message "The current version of the application could not be determined. The setup will terminate now", what should I do?

a) Please do the following:
* Click on the Start button.
* Click on Run.
* Type C:\Program Files\Common Files into the text box and press OK.
* Right-click on the InstallShield folder, and choose rename.
* Change the name to InstallShieldOld.
* Start the software installation again from the CD.

Uninstallation Instructions

Q1: How do I uninstall FireflyPro software?

a) Please follow these steps:

1. From the "Start" menu, select "Control Panel"
2. Select "Add or Remove Programs"
3. Click on FireflyPro and select "Remove" from the top of the window
4. When prompted with "Do you want to completely remove the selected application and all of its features?" Select "Yes".
5. Find "Digital Microscope" and select "Remove". If "Digital Microscope" is not on the list, please proceed to Step 7 below
6. When prompted with "Do you want to completely remove the selected application and all of its features?" Select "Yes".
7. Unplug wireless receiver from computer.
8. Eject software CD
9. Restart computer. Uninstallation is now complete.

Functionality related questions

Q1: My GT620 was working fine yesterday but today the software crashed, what is wrong?

a) Make sure the wireless receiver is plugged DIRECTLY into your computer, i.e. not into a USB hub or USB extender cable.

Q2: My Firefly will not charge, what should I do?

a) If you do not see a red LED lit up on the Firefly but instead see a flashing red/green LED on the Firefly, please make sure you are using the original short USB cable for charging. Using a long cable will not work properly for CHARGING.

b) When you plug in the mini-USB cable the LED on the device will turn red. If you do not see a solid red light, please try using the computer USB port instead of the AC charger or vice versa. If this does not solve the problem try another short USB cable.

Q3: There is a lot of interference (visual artifacts and disturbances) on the screen, what can I do to get better reception?

a) Your camera may be experiencing interference from other wireless devices or may have weak signal strength. Please try the following steps:

1. Look for a wireless channel with less interference by switching the wireless channel both on the camera and wireless receiver.
2. Do not cover the back of the camera with your hand. This is where the antenna is located.
3. Do not place the wireless receiver under metal desks, inside metal cabinets or near metal furniture.

b) Eliminate as many physical obstacles as possible between the camera and the wireless receiver.
c) Move any 5.8GHz cordless phones away from the camera as they may cause interference.
d) Tilt the wireless receiver up and down for better reception.
e) Recharge the camera to strengthen its power output.

General Product Questions

Q1: Will the Firefly device work on my Mac if I'm running Windows on my Mac?

a) Although Firefly devices do not have native Mac OSx support, they do work well with Windows emulation packages such as Parallels, VMware, etc.

Q2: Can I use the Firefly products on a thin client?

a) No, a designated CPU is required to run FireflyPro.

Q3: Can I install the software without a CD?

a) Yes, please contact support@fireflyglobal.com for a downloadable version of FireflyPro.

Q4: Can I use my Firefly with my EMR system (such as Noah, Cornerstone, etc.)?

a) FireflyPro captures .bmp and .AVI files which can be downloaded to most EMR/EHR systems.

Q5: What do I do when my computer is woken-up from standby or hibernation and FireflyPro software stops working?

a) Please close and try restarting the FireflyPro software application again.

For additional FAQ and support, please go to http://www.fireflyglobal.com/faqs/

Thank you for choosing Firefly.

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